12. A group III nitride wafer according to paragraphs 1 through 11, wherein the surface area is more than 100 mm^2.
13. A group III nitride wafer according to paragraphs 1 through 12, wherein the composition is GaN.
14. A group III nitride wafer comprising a first layer and a second layer of damaged group III nitride on opposite faces of a third layer of highly oriented poly or single crystalline group III nitride, wherein the first and the second layer were formed through a mechanical process and the surface of the second layer is made visually distinguishable from the surface of the first layer by a chemical etching.
15. A group III nitride wafer according to paragraph 14, wherein the wafer is sliced from a bulk crystal of group III nitride.
16. A group III nitride wafer according to paragraph 14 and claim **15**, wherein the wafer is sliced from a bulk crystal of group III nitride with a multiple wire saw.
17. A group III nitride wafer according to paragraphs 14 through 16, wherein the chemical etching uses acid or base.
18. A group III nitride wafer according to paragraph 17, wherein the chemical etching uses phosphoric acid or its mixture.
19. A group III nitride wafer according to paragraph 17 and claim **18**, wherein the chemical etching uses phosphoric acid or its mixture at 50° C. or higher.
20. A group III nitride wafer according to paragraph 14 through 19, wherein the surface area of the wafer is more than 100 mm^2.
21. A group III nitride wafer according to paragraph 14 through 20, wherein the density of line defect and grain boundary of the third layer is less than 10^6 cm^{-2}.
22. A group III nitride wafer according to paragraphs 14 through 21, wherein the group III nitride is GaN.
23. A method of fabricating a group III nitride wafer having a first layer and a second layer, each comprising a damaged or partially damaged layer of group III nitride, and a third layer having highly oriented poly or single crystalline group III nitride, comprising:
    (a) slicing a wafer from a bulk crystal of a group III nitride ingot mechanically;
    (b) chemically etching the wafer under conditions that make the surface of the second layer visually distinguishable from the surface of the first layer.
24. A method according to paragraph 23, wherein the wafer is cut from the ingot using a multiple wire saw.
25. A method according to paragraph 23 or paragraph 24, wherein the chemical etching uses phosphoric acid or its mixture.
26. A method according to any of paragraphs 23 through 25, wherein the chemical etching uses phosphoric acid or its mixture at 50° C. or higher.
27. A method according to any of paragraphs 23 through 26, wherein the density of line defect and grain boundary of the third layer is less than 10^6 cm^{-2}.
28. A method according to any of paragraphs 23 through 27, wherein the group III nitride is GaN.
29. A method of fabricating a group III nitride wafer according to paragraph 28 and including the step of growing a bulk crystal of group III nitride to form the ingot, wherein the growth of bulk crystal of group III nitride uses supercritical ammonia and comprises the following steps:
    (a) charging Ga-containing nutrient in a high-pressure reactor;
    (b) charging at least one seed crystal in the high-pressure reactor;
    (c) charging a chemical additive which increases dissolution of Ga-containing nutrient into the supercritical ammonia;
    (d) charging ammonia in the high-pressure reactor;
    (e) sealing the high-pressure ammonia;
    (f) providing enough heat to ammonia to create supercritical state;
    (g) dissolving the Ga-containing nutrient into the supercritical ammonia;
    (h) crystallizing GaN on the seed crystal.
30. A method of fabricating a group III nitride wafer comprising removing the first layer or the second layer of a wafer of any of paragraphs 14 through 22 and exposing the third layer with a surface quality sufficient to fabricate devices.
31. A method according to paragraph 30, wherein the removing process comprises grinding.
32. A method according to paragraph 30, wherein the removing process comprises lapping.
33. A method according to paragraph 30, wherein the removing process comprises polishing.
34. A method according to paragraph 30, wherein the removing process comprises chemical mechanical polishing.
35. A method according to any of paragraphs 30 through 34, wherein the group III nitride is GaN.

REFERENCES

The following references are incorporated by reference herein:

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What is claimed is:

1. A group III nitride wafer having composition of $Ga_xAl_yIn_{1-x-y}N$ ($0 \le x \le 1$, $0 \le x+y \le 1$), wherein the wafer is formed by roughening both surfaces using a mechanical process and the surfaces are chemically treated to visually distinguish, without instrumentation, one surface from another after said roughening and before chemically-mechanically polishing the wafer.

2. A group III nitride wafer according to claim **1**, wherein the mechanical process comprises slicing the wafer from a bulk crystal of group III nitride.